

Serial No. 09/988,060
Docket No. F01-273-US DIV

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Please add claim 13 as follows:

13. A semiconductor light-emitting element comprising:
a chip having at least an electrode and a protective film layer;
an insulating resin for sealing said chip;
wherein said insulating resin is hardened at high temperature and heat-treated in an atmosphere having an absolute humidity H (KPa) during the time T (hr) satisfying $T \geq -1.7H + 124$.

REMARKS

Applicant respectfully submits that entry of this §1.116 Amendment is proper. Since the amendments above narrow the issues for appeal and merely clarify the subject matter of the claims. Applicant further respectfully submits that such amendments do not raise a new issue requiring a further search and/or consideration by the Examiner. As such, entry of this §1.116 Amendment is earnestly solicited.

Claims 1-13 are pending in the application. By this Amendment, claims 1 and 2 are amended and new claim 13 is added. No new matter is added to amended claims 1 and 2, or to new claim 13. Claims 1 and 2 are amended to merely clarify the subject matter of the claims and in no way narrow the scope of the claims in order to overcome the prior art or for any other statutory purpose of patentability.

Notwithstanding any claim amendments of the present Amendment or those amendments that may be made later during prosecution, Applicant's intent is to encompass equivalents of all claim elements. Reconsideration in view of the foregoing amendments and the following remarks is respectfully requested.

Attached is a marked-up version of the changes made to the claims by the Amendment. The attached pages are captioned "Version with markings to show changes made".

Claims 1-12 stand rejected under 35 U.S.C. §103(a) as unpatentable over U.S. Patent No. 5,877,558 to Nakamura et al. (hereinafter, Nakamura) in view of U.S. Patent No. 4,152,624 to Knaebel.

Applicant respectfully traverses this rejection.

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THE PRIOR ART REJECTION

A. The Nakamura Reference

Fig. 7 of Nakamura discloses a protective film 412 that covers the entire exposed surface of the p-electrode 15, the exposed edge surface of the p-type semiconductor layer 13, and the exposed surface of the n-type semiconductor layer 12 (col. 10, lines 41-45).

B. The Knaebel Reference

Knaebel discloses a molded LED indicator, where following encapsulation, the relationship of elements is maintained for a cure period, while the mold is raised to a cure temperature of about 120°--140° C. and the encapsulant permitted to cure for at least about one hour (col. 10, lines 48-52).

Claim 1 recites at least the feature of "wherein said insulating resin is hardened at high temperature and heat-treated in an atmosphere having relative humidity."

Applicants respectfully submit that at temperatures of 100° C or more, relative humidity does not exist. Accordingly, the present invention cannot be obvious from the prior art, either alone or in combination, in which a resin is cured at 1 atmospheric pressure and at a temperature greater than 100° C.

Nowhere does Nakamura and Knaebel, wither individually or in combination, teach or suggest heat-treating a resin in an atmosphere having a relative humidity.

Claim 2 recites at least the feature of "heat-treated in an atmosphere having relative humidity at a temperature of 60° C or higher."

In contrast, the prior art discloses a curing process at a temperature of 100° C or more. Therefore, claim 2 of the present invention is completely different from and not taught or suggested by the prior art.

Regarding claims 3-6, these claims disclose a measure of humidity expressed as an absolute humidity. Because a heat treatment is carried out under a normal condition, the absolute humidity in the prior art may be lower than 10 kPa.

For at least the reasons outlined above, Applicants respectfully submit that Nakamura and Knaebel, either individually or in combination, fail to teach and suggest every feature of claim 1. Accordingly, Nakamura and Knaebel, either individually or in combination, fail to render obvious the subject matter of claim 1 and claims 2-12, which depend from claim 1,

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under 35 U.S.C. §103. Withdrawal of the rejection of claims 1-12 under 35 U.S.C. §103 over Nakamura and in view of Knaebel is respectfully solicited.

CONCLUSION

In view of the foregoing, Applicant submits that claims 1-13, all the claims presently pending in the application, are patentably distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0481.

Respectfully Submitted,

Date: 4/9/03

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Reg. No. 46,199

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CERTIFICATION OF FACSIMILE TRANSMISSION

I hereby certify that I am filing this Amendment by facsimile with the United States Patent and Trademark Office to Examiner Douglas A. Wille, Group Art Unit 2814 at Official Facsimile Number (703) 872-9319 this 9th day of April, 2003.

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Please amend claims 1 and 2 as follows:

1. (Amended) A semiconductor light-emitting element comprising:
a chip having at least an electrode and a protective film layer;
an insulating resin for sealing said chip;
wherein said insulating resin is hardened at high temperature and heat-treated in an atmosphere having relative humidity at a temperature of 60° C or higher.
2. (Amended) A semiconductor light-emitting element according to claim 1, wherein the heat treatment is performed at [a] any temperature [of 60° C or higher] in a range from 60° C to 100° C.

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